

ABSTRACT OF THE DISCLOSURE

A portal trace detection apparatus is provided for detecting minute particles of interest, such as traces of narcotics, explosives and other contraband. The apparatus includes a portal through which a human suspect will pass. A detection apparatus is disposed at least partly in the ceiling of the portal, and hence above the human subject in the portal. Particles of interest will be entrained in the human thermal plume that exists in the boundary layer of air adjacent the suspect, and will flow upwardly from the suspect to the detection apparatus in the ceiling of the portal. The portal includes a plurality of vertically aligned arrays of air jets. The air jets are fired sequentially from bottom to top to produce short bursts of air sufficient to disturb the clothing of the suspect and to dislodge particles of interest from the clothing. The dislodged particles of interest are entrained in the air in the human thermal plume and are transported upwardly to the detector.